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Introduction to Evidence Based Public Health Information Resources

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National Institutes of Health
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

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Objectives

- Define evidence-based medicine, evidence-based practice and evidence-based public health (EBPH)
- Outline the unique characteristics of EBPH
- Describe the EBPH Framework
- Apply key concepts to searching and evaluating the public health literature
- Identify resources that support best evidence research and practice

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Online Resources

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Evidence Based Public Health: Home

Enter Search Words | Search

A guide about evidence based public health information and resources.

Home | Evidence-based Practice | Surveillance Data | Economic Evaluation and Gray Literature | Health Policy Resources | Training and Planning Tools | Evidence-Based Practice Resources

NIH Library Class Slides on Evidence Based Public Health Information

- Evidence Based Public Health Information Resources
  NIH Library class handout for our Introduction to Evidence Based Public Health Information class.

Evidence Based Public Health Definitions

What is Evidence-Based Practice (EBP): Evidence-based practice is the judicious use of the best research evidence (found in health sciences literature), clinical expertise (what the health care provider knows) and patient values (what the patient wants and believes) to create a plan of action regarding patient care. Evidence-based practice is an umbrella term that covers evidence-based medicine, evidence-based dentistry, evidence-based public health, evidence-based nursing and etc.

What is Evidence-Based Public Health: Evidence-based public health is defined as the development, implementation, and evaluation of effective programs and policies in public health through application of principles of scientific reasoning, including systematic uses of data and information systems, and appropriate use of behavioral science theory and program planning models.

Informationist/Biomedical Librarian

Nancy Terry

Email Me

EBM → EBP → EBPH

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Evidence-Based Medicine

- Evidence-based medicine (EBM) involves conscientiously working with patients to help them resolve or cope with problems related to their physical, mental, and social health (Guyatt, Rennie, Meade, Cook, & American Medical Association., 2015).
- Evidence-based decision making grew out of a desire to move beyond "authority-based decision making," in which decisions were made by consensus, by anecdotal experience, or tradition (Gambrill, 2006).

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What is EBP?

- It did not take long for people to realize that the principles of EBM were equally applicable to other professions.
- So, evidence-based health care and evidence-based practice covers the full range of clinical applications of the evidence-based approach to patient care.
- EBP has been adopted by nurses, social workers, and policy analysts.
- And parts of EBP are embedded in the EBPH framework.

Guyatt, Rennie, Meade, Cook, & American Medical Association (2015)

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Evidence-based Public Health

"Process of integrating science-based interventions with community preferences to improve the health of populations"

Brownson, R. C. (2011)

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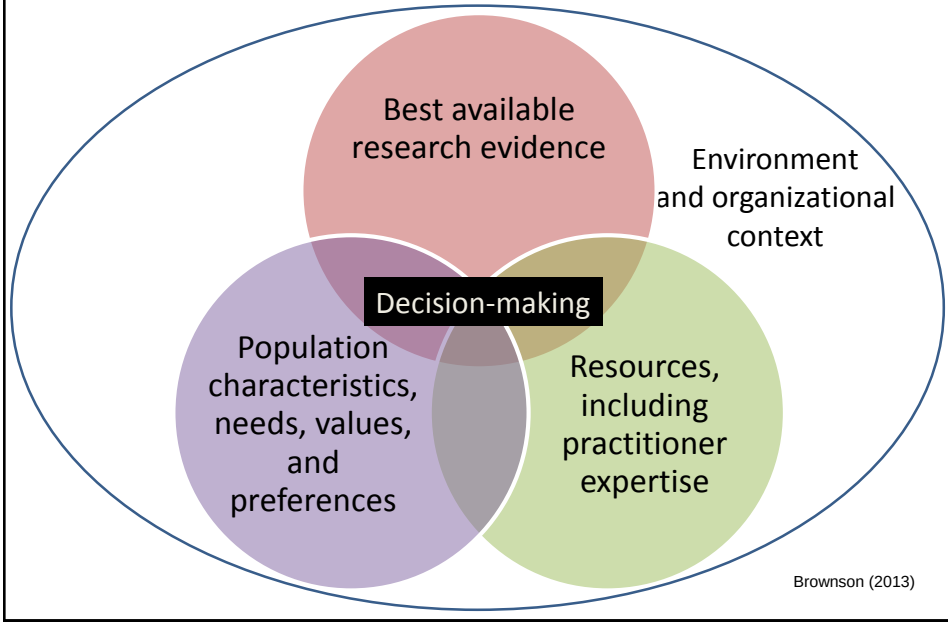
EBPH Characteristics



Brownson (2013)

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EBM & EBPH Differences

Characteristics	EBM	EBPH
Quality & volume of evidence	Experimental studies	Quasi-experimental studies
Time from intervention to outcome	shorter interval	longer interval
Training	more formal – certification required	less formal – no certification required*
Decision making	Individual (mostly)	Group (mostly)

Jacobs, J. A., et al. (2012)
Brownson, R. C. (2013)

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Public Health Practice

- What makes public health interventions different from medical interventions?
  - Scale
  - Situational variability
  - Complexity of the intervention

Shelton, J. D. (2014)

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Scale

- Public health interventions usually operate at a larger scale, and address issues that span clinical, behavior, and structural dimensions.

Shelton, J. D. (2014)

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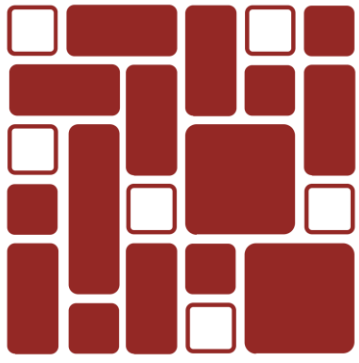
Situational variability

- Because situations can vary so widely in public health, the "external validity" or generalizability of evidence to other situations is absolutely crucial for public health applications.
- Yet, with RCTs?



Shelton, J. D. (2014)

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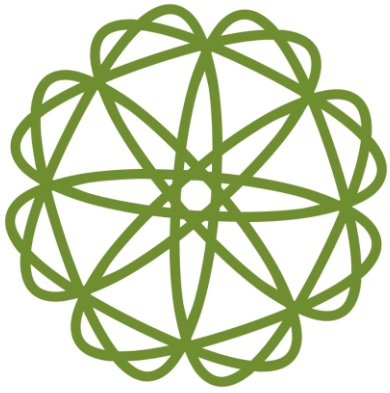
Complexity of the intervention



- What is the best **set** of interventions for particular settings?
- How should the interventions be **organized** and **delivered** within existing systems?
- What will make the intervention sustainable?

Shelton, J. D. (2014)

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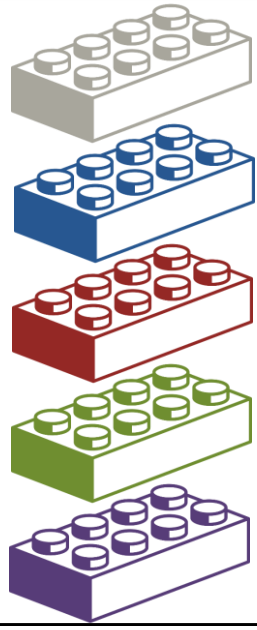
EBPH Framework



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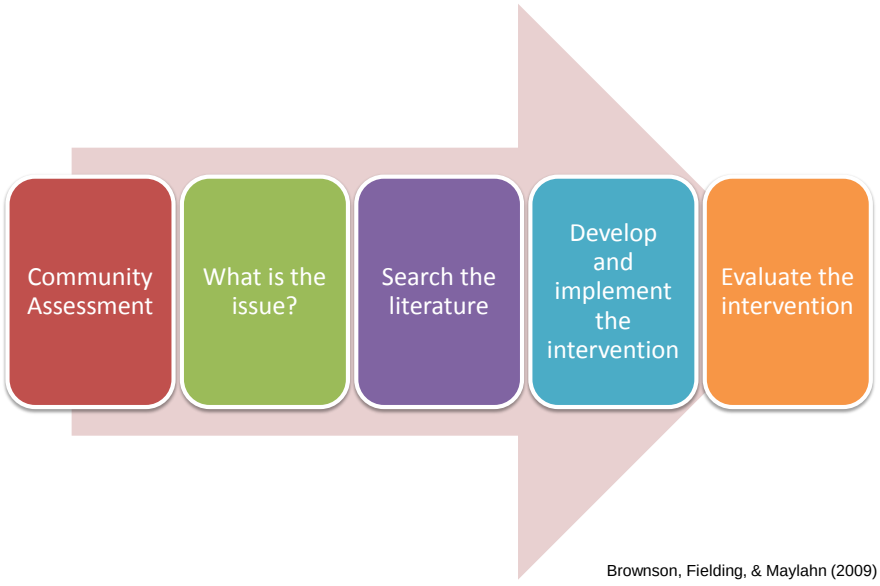
EBPH Framework



Brownson, Fielding, & Maylahn (2009)

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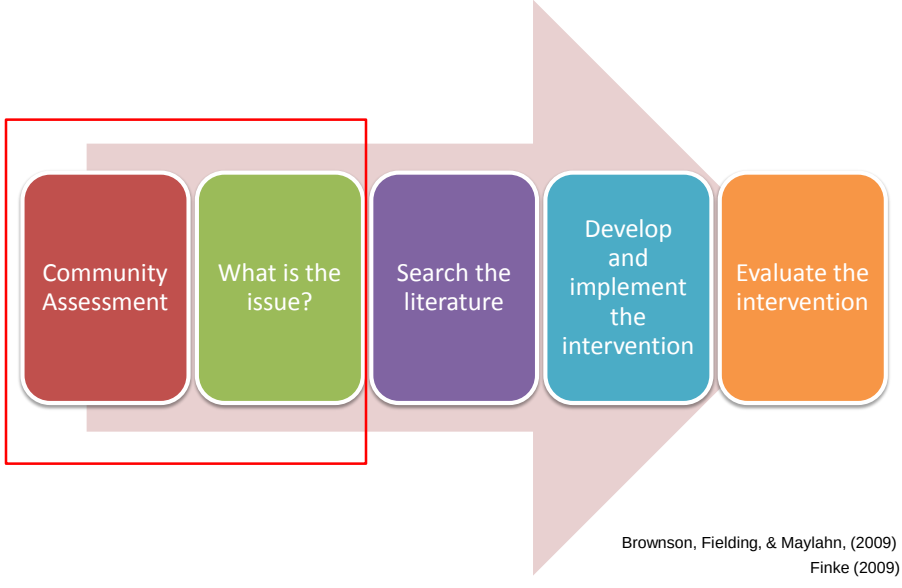
EBPH Framework



Brownson, Fielding, & Maylahn, (2009)
Finke (2009)

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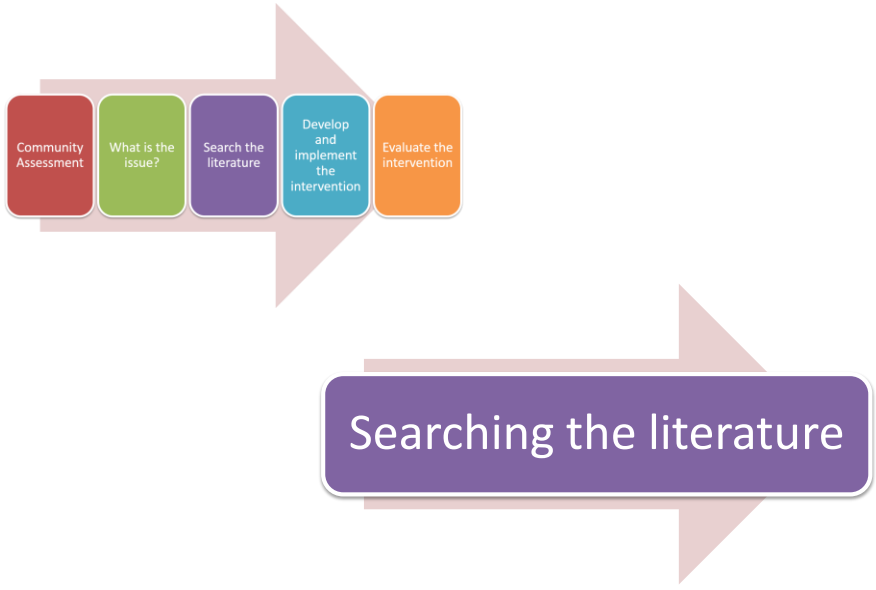
EBPH Framework



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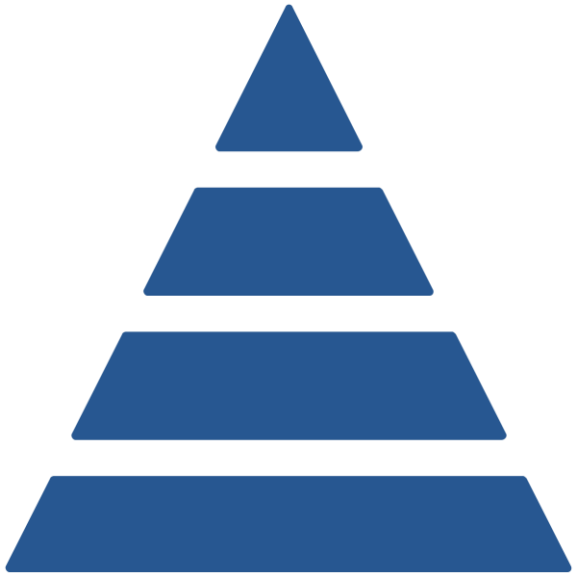
Levels of Evidence



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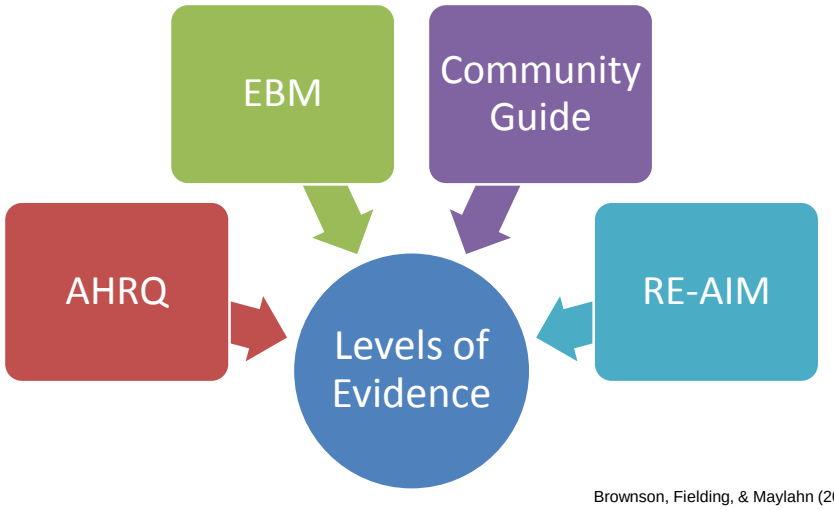
Defining Evidence

Public health evidence is usually the result of a complex cycle of observation, theory, and experiment.



Brownson, Fielding, & Maylahn (2009)

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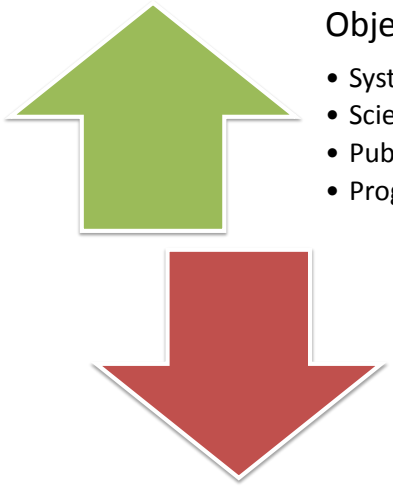
Different forms of evidence



Objective

- Systematic reviews
- Scientific literature
- Public health surveillance data
- Program evaluations

Subjective

- Media/marketing data
- Word of mouth
- Personal experience

Like beauty, evidence is in the eye of the beholder…

Brownson, Fielding, & Maylahn (2009)

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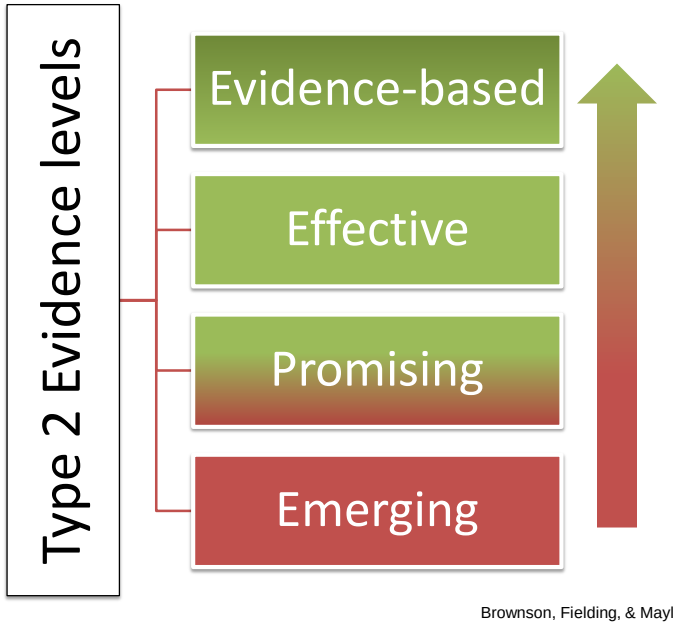
Types of Evidence: Comparison

Character	Type 1	Type 2	Type 3
Typical data/ relationship	Size and strength of preventable Risk or disease relationship	Relative effectiveness of intervention	Information on the adaptation and translation of an effective intervention
Common setting	Clinic or controlled community setting	Socially intact groups or community wide	Socially intact groups or community wide
Example	Smoking causes lung cancer	Targeted campaign to reduce smoking	Understanding the implications of the intervention to particular segments
Quantity	More	Less	Less
Action	Something should be done	Implementing the intervention	How an intervention should be implemented

Brownson (2013)



Brownson, Fielding, & Maylahn (2009)

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Emerging Evidence

Category	How established	Rigor	Examples
Emerging	• Ongoing work • Practice based summaries • Evaluation works in progress	• Formative evaluation data • Potentially high-reaching • Face value	• Evaluability assessments • Pilot studies • Projects funded by health foundations

Brownson, Fielding, & Maylahn (2009)

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Promising Evidence

Category	How established	Rigor	Examples
Promising	Written program evaluation without formal peer review.	• Cumulative evidence of effectiveness • Formative evaluation data	• State or federal government reports (without peer review) • Conference presentations

Brownson, Fielding, & Maylahn (2009)

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Effective Evidence

Category	How established	Rigor	Examples
Effective	Peer-review	• Based on study design and execution • External validity • Assessing risk or benefits • Costs and cost-effectiveness	• Articles in the scientific literature • Research-tested intervention Programs • Technical reports with peer review

Brownson, Fielding, & Maylahn (2009)

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Evidence-based Evidence

Category	How established	Rigor	Examples
Evidence-based	Peer review via systematic or narrative review	• Based on study design and execution • External validity • Assessing risk or benefits • Costs and cost-effectiveness	• Community Guide • Cochrane or Campbell reviews • Narrative reviews based on published literature

Brownson, Fielding, & Maylahn (2009)

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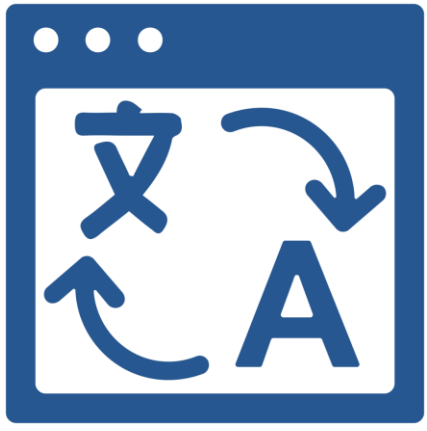
Finding the Evidence



1. Frame research question
2. Select databases, websites, and other sources
3. Choose a search strategy
4. Apply a methodological standards for evaluating a study's scientific quality
5. Perform the review so that it can be reproduced by others
6. Synthesizing the results

Fink, A. (2013)

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PICO Question

- Ask for specific knowledge to inform decisions or actions, and have four essential components:
  - P: The patient, the population, or the problem.
  - I: The intervention, exposure, or test.
  - C: The comparison intervention, exposure, or test (if relevant).
  - O: The outcome of importance, including time (if relevant).

Straus (2011)

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PICO Questions: The P

- What is the relevant population?
- What are the relevant characteristics for your population?
- This should be defined in terms of health condition, age, gender, ethnic background, comorbidities, and socioeconomic status.
- Examples of strong population component include:
  - Homeless male clients diagnosed with PTSD.
  - Hispanic adolescents residing in single-parent households.

Falzon (2010)
Flanagan (2014)

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PICO Questions: The I

- The interventions or exposures:
  - An intervention might be therapeutic, diagnostic, or administrative.
  - Exposure refers to something that is happening unintentionally but is having an effect on health.
- Again, this should be as detailed as possible.

Falzon (2010)
Flanagan (2014)

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PICO Questions: The C

- What is the intervention being compared to?
- Example: interventions to reduce smoking rates – health education programs vs. smoking bans
- Considering these different comparators ensures that the chosen comparison is appropriate to the population.

Falzon (2010)
Flanagan (2014)

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PICO Questions: The O

- What are the population-relevant consequences of the exposures in which we are interested?
- What can I hope to accomplish, measure, improve, or affect?
- We may also be interested in the consequences to society, including cost or resource use.
- It may also be important to specify the period of interest.

Falzon (2010)
Flanagan (2014)

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Selected Resources

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Public Health Information Sources

- Journal Literature
- Books
- Conference Proceedings & Abstracts
- Dissertations & Theses
- Health Impact Assessments
- Government Reports
- Policy Statements, Laws & Regulations
- Surveillance Data
- Newsletters
- Teleconferences & Webcasts
- Alert Systems
- Listservs
- Internet Sources
- Expert Knowledge & Opinion
- Grey Literature

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Public Health Evidence Sources

- ☐ **Systematic Reviews**
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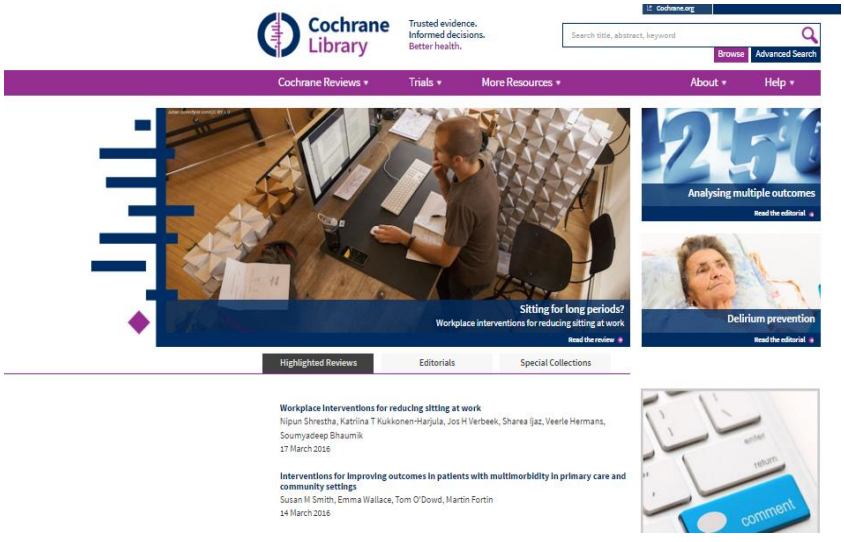
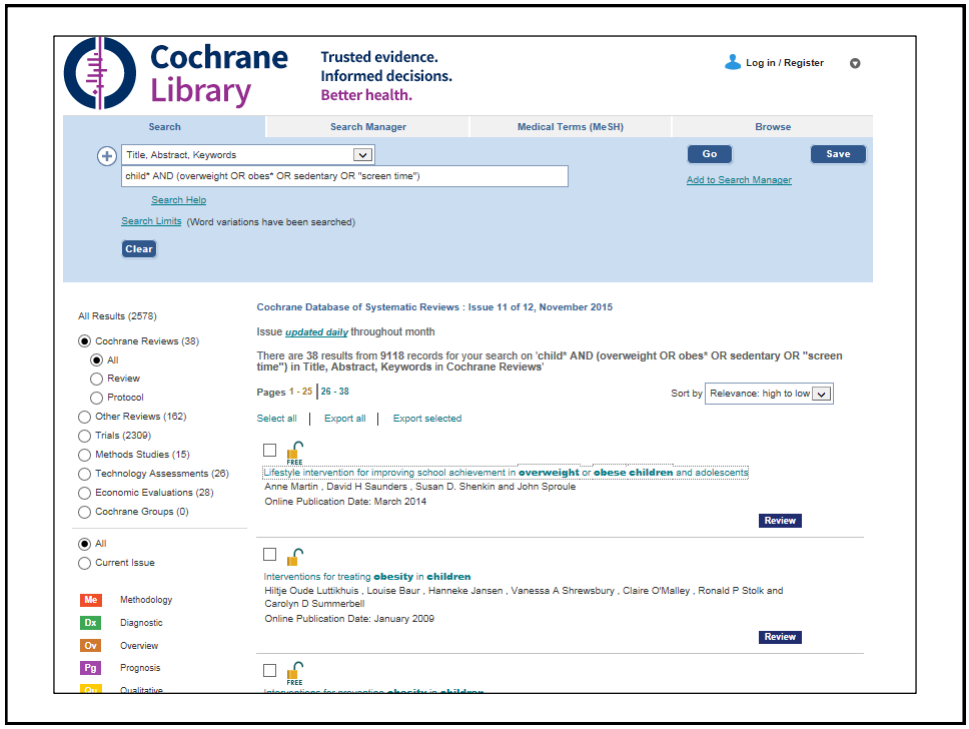
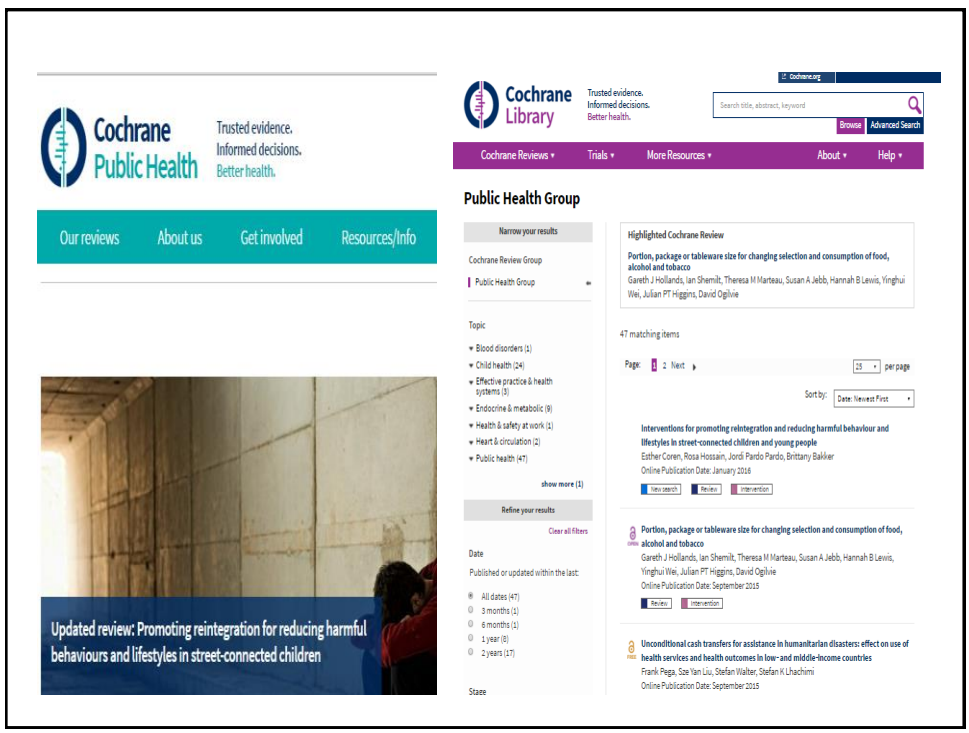
Cochrane Library




Cochrane Library
Trusted evidence.
Informed decisions.
Better health.
Log in / Register
Search
Search Manager
Medical Terms (MeSH)
Browse
Title, Abstract, Keywords
child* AND (overweight OR obes* OR sedentary OR "screen time")
Go
Save
Add to Search Manager
Search Help
Search Limits (Word variations have been searched)
Clear
All Results (2578)
Cochrane Reviews (38)
All
Review
Protocol
Other Reviews (162)
Trials (2309)
Methods Studies (15)
Technology Assessments (26)
Economic Evaluations (28)
Cochrane Groups (0)
All
Current Issue
Me Methodology
Dx Diagnostic
Ov Overview
Pg Prognosis
Cochrane Database of Systematic Reviews : Issue 11 of 12, November 2015
Issue updated daily throughout month
There are 38 results from 9118 records for your search on 'child* AND (overweight OR obes* OR sedentary OR "screen time") in Title, Abstract, Keywords in Cochrane Reviews'
Pages 1 - 25 | 26 - 38
Sort by Relevance: high to low
Select all | Export all | Export selected
Lifestyle intervention for improving school achievement in overweight or obese children and adolescents
Anne Martin , David H Saunders , Susan D. Shenkin and John Sproule
Online Publication Date: March 2014
Review
Interventions for treating obesity in children
Hiltje Oude Luttikhuis , Louise Baur , Hanneke Jansen , Vanessa A Shrewsbury , Claire O'Malley , Ronald P Stolk and Carolyn D Summerbell
Online Publication Date: January 2009
Review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Updated review: Promoting reintegration for reducing harmful behaviours and lifestyles in street-connected children
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Public Health Group
Topic
Blood disorders (1)
Child health (24)
Effective practice & health systems (3)
Endocrine & metabolic (9)
Health & safety at work (1)
Heart & circulation (2)
Public health (47)
show more (1)
Refine your results
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Date
Published or updated within the last:
All dates (47)
3 months (1)
6 months (1)
1 year (8)
2 years (17)
Highlighted Cochrane Review
Portion, package or tableware size for changing selection and consumption of food, alcohol and tobacco
Gareth J Hollands, Ian Shemilt, Theresa M Marteau, Susan A Jebb, Hannah B Lewis, Yinghui Wei, Julian PT Higgins, David Ogilvie
47 matching items
Interventions for promoting reintegration and reducing harmful behaviour and lifestyles in street-connected children and young people
Esther Coren, Rosa Hossain, Jordi Pardo Pardo, Brittany Bakker
Online Publication Date: January 2016
Review
Intervention
Portion, package or tableware size for changing selection and consumption of food, alcohol and tobacco
Gareth J Hollands, Ian Shemilt, Theresa M Marteau, Susan A Jebb, Hannah B Lewis, Yinghui Wei, Julian PT Higgins, David Ogilvie
Online Publication Date: September 2015
Review
Intervention
Unconditional cash transfers for assistance in humanitarian disasters: effect on use of health services and health outcomes in low- and middle-income countries
Frank Pega, Sze Yan Liu, Stefan Walter, Stefan K Lhachimi
Online Publication Date: September 2015

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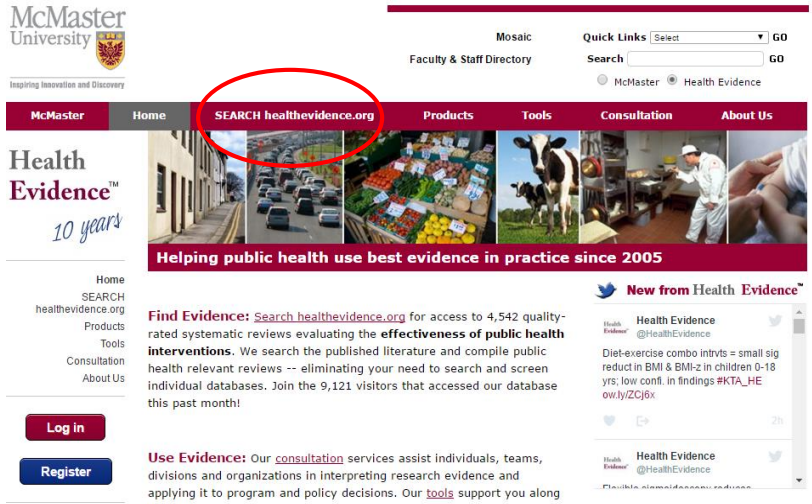
Health Evidence



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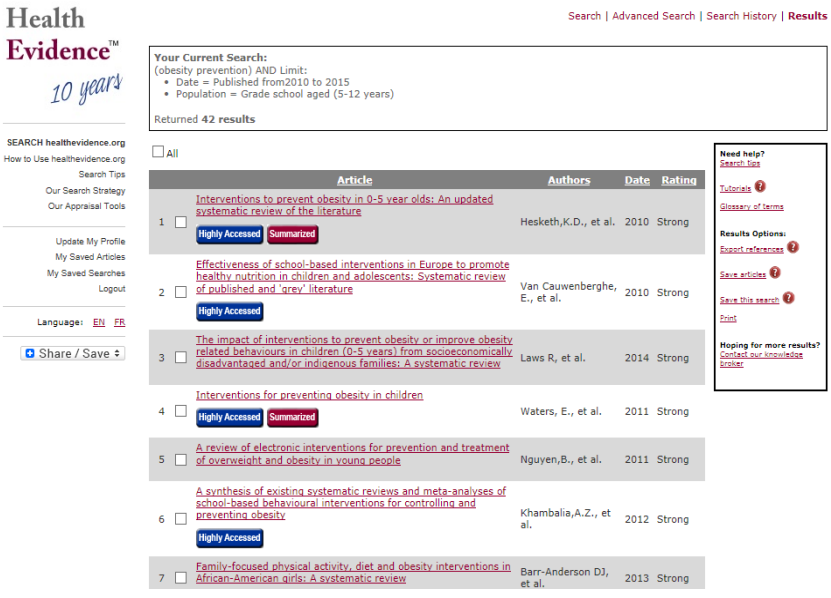
Health Evidence Searchable Database



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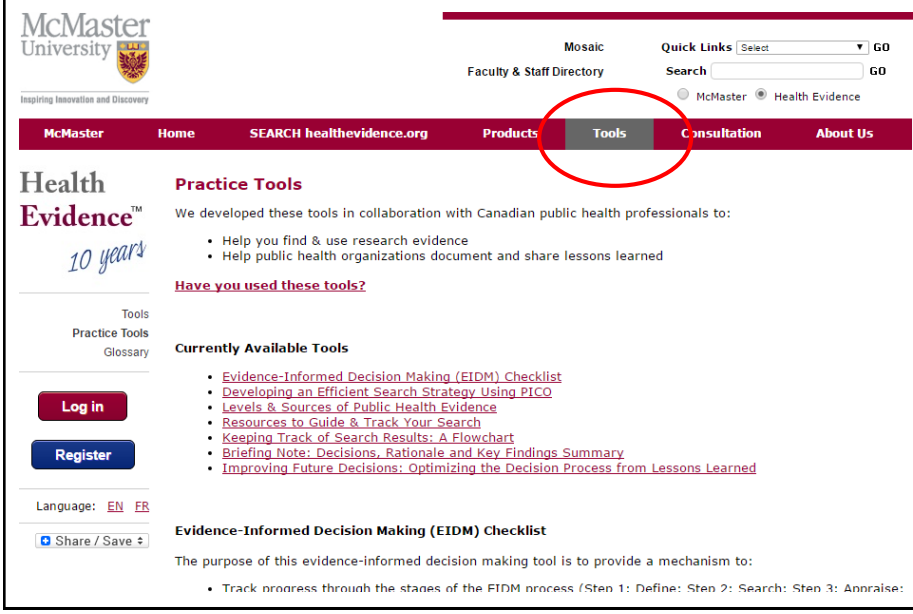
Health Evidence Practice Tools



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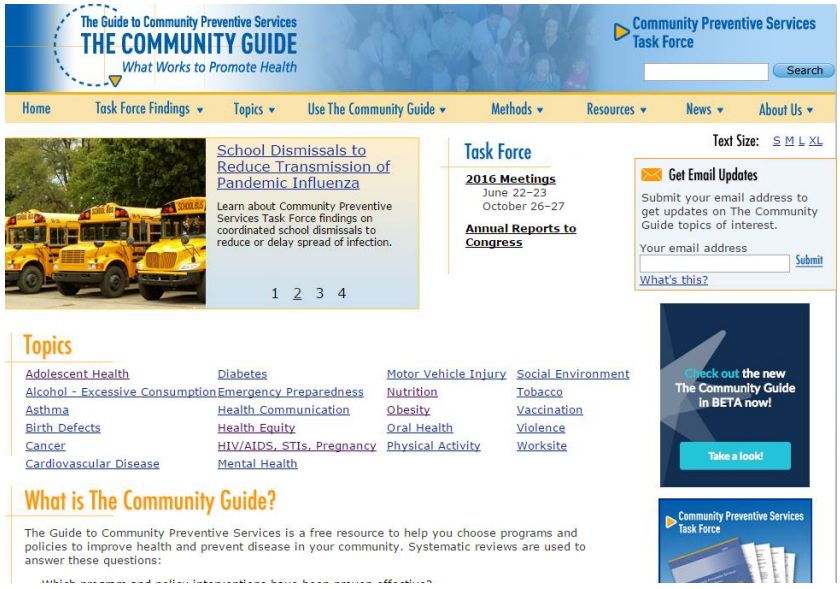
Community Guide



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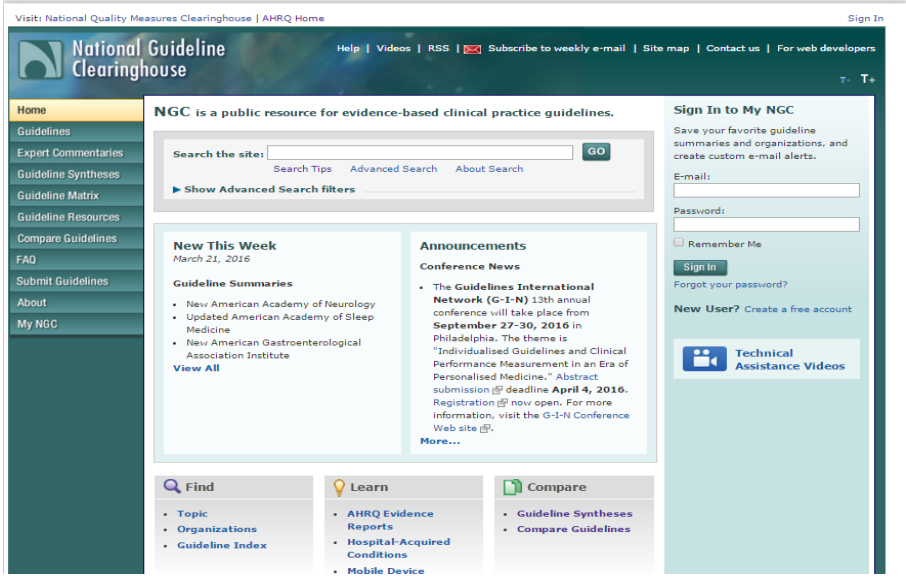
National Guideline Clearinghouse



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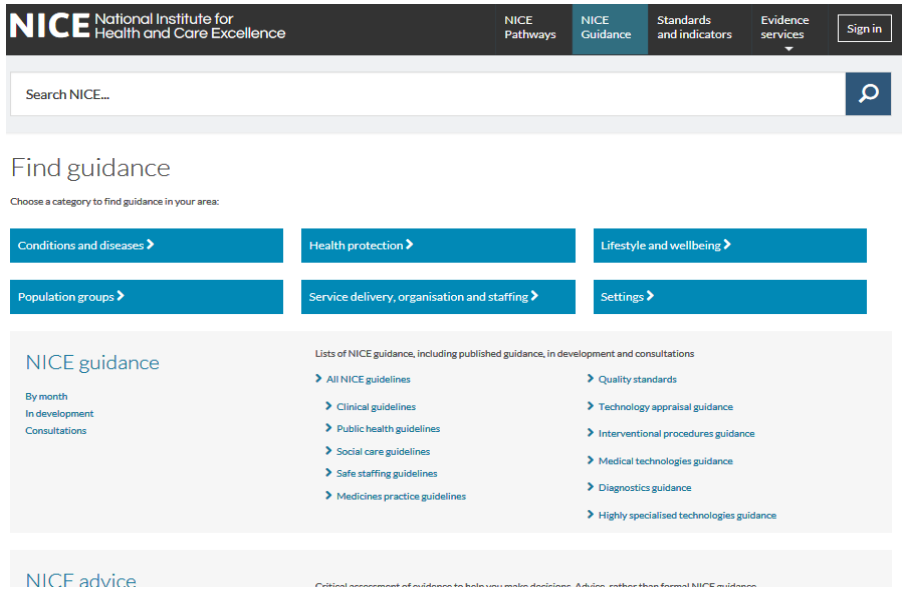
NHS - NICE



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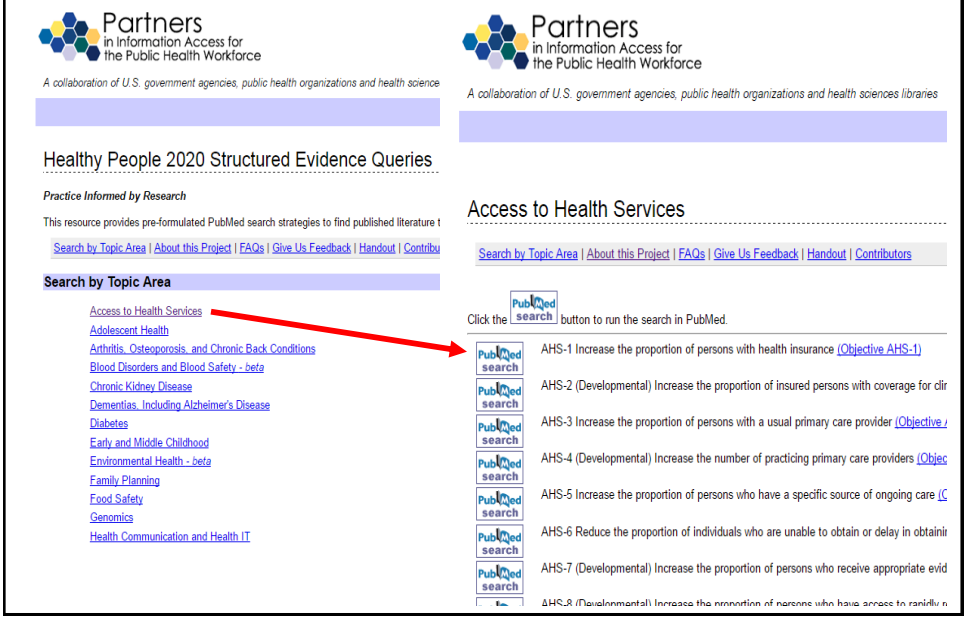
Healthy People 2020 Queries



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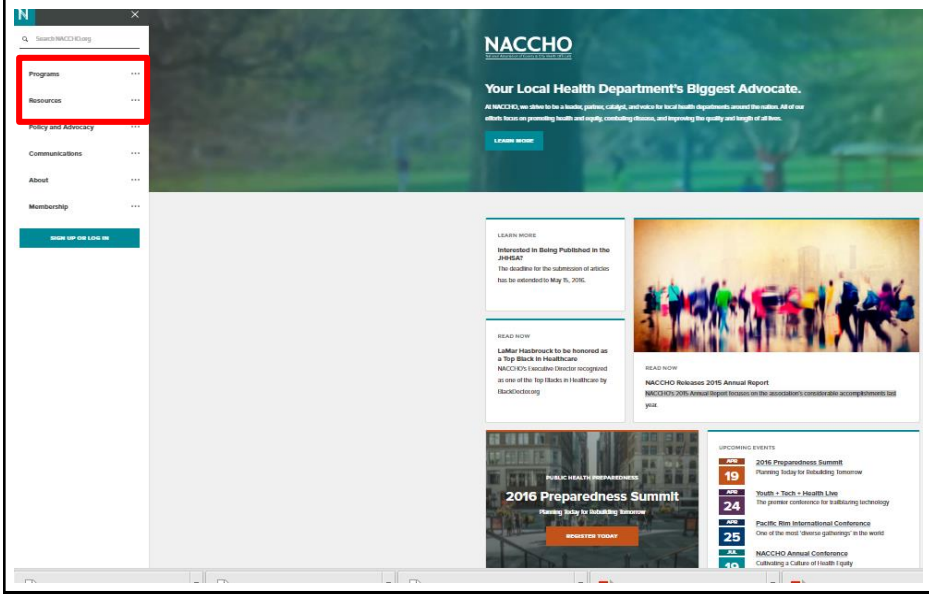
NACCHO



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Profile of State Public Health

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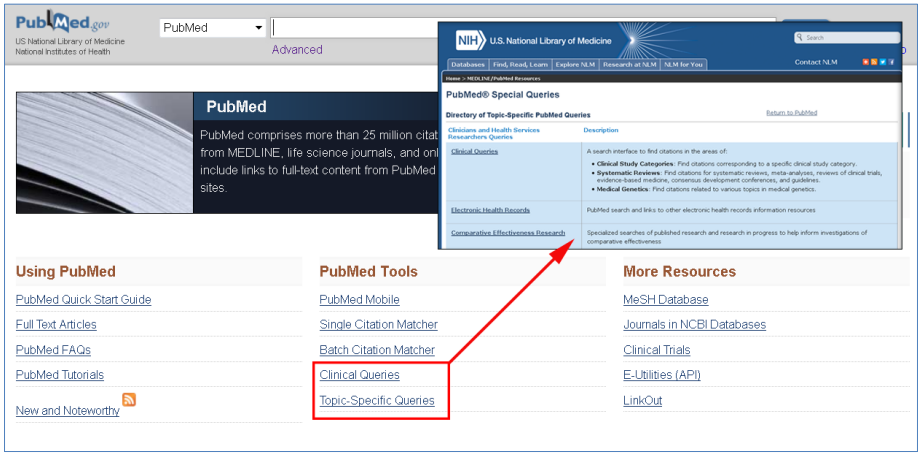
PubMed – Special Queries



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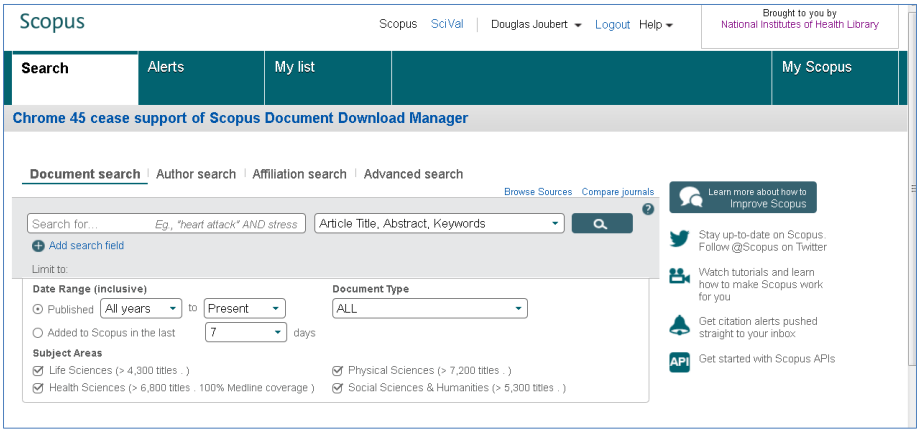
Scopus



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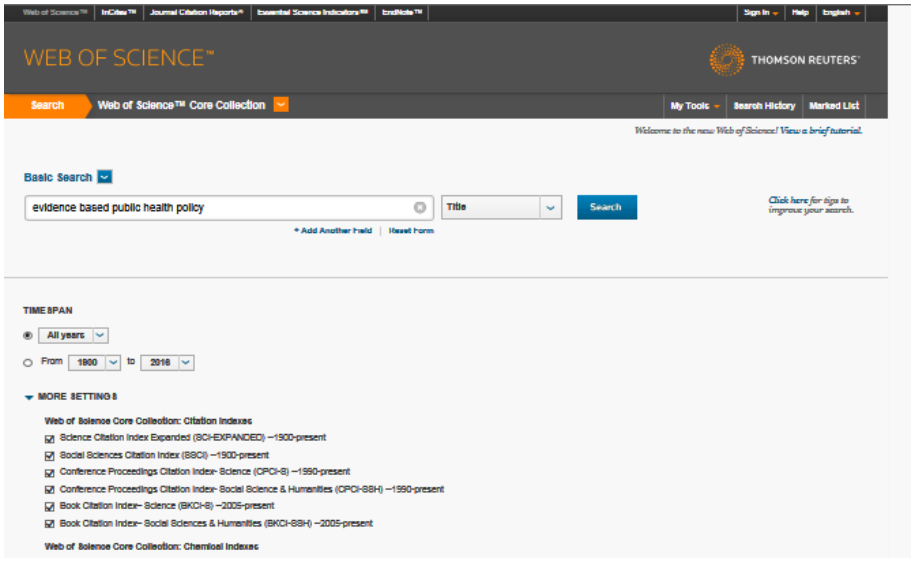
Web of Science



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Public Health Evidence Sources

- ☐ Evidence Based Guidelines
- ☐ Systematic Reviews
- ☐ Pre-formulated Searches
- ☐ Best and Model Practices
- ☐ Bibliographic Databases
- **☐Public Health Journals**
- ☐ Health Impact Assessments
- ☐ Health Data and Statistics
- ☐ Legislation and Policy

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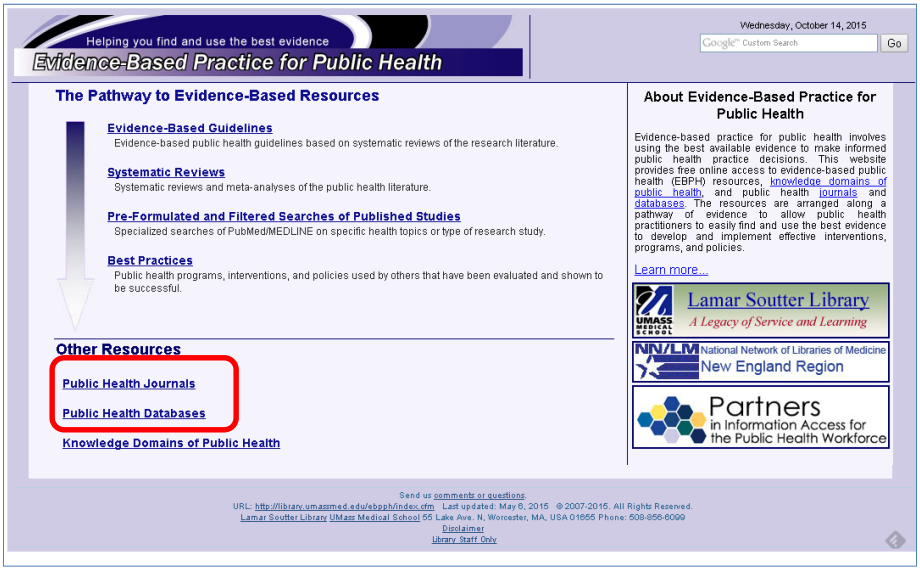
Evidence Based Practice Portal



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Health Impact Assessment Sites

- Dannenberg AL, Bhatia R, Cole BL, et al. Use of health impact assessment in the U.S.: 27 case studies, 1999–2007.Am J Prev Med 2008;34(3):241–256.
- CDC Healthy Places Health Impact Assessment
- Health Impact Project – PEW Trust
- International Health Impact Assessment Consortium
- World Health Organization Health Impact Assessment
- UCLA HIA Clearinghouse Learning & Info Center

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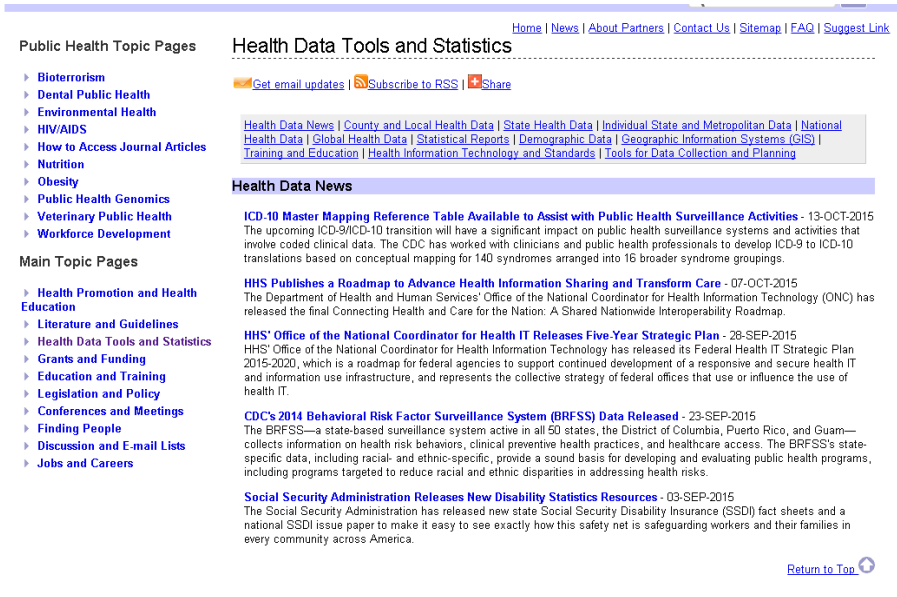
PHPartners – Data and Stats



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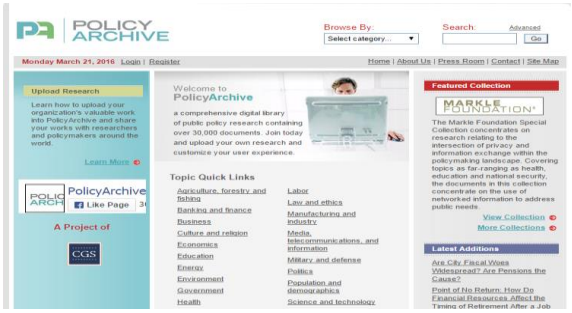
Policy Archive / Policy File



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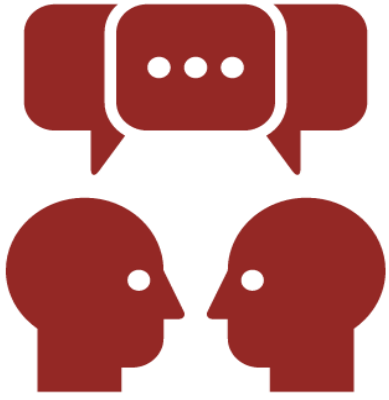
Policy Centers

- Academy Health - Health policy information on the evolving health system.
- Center for Health Care Strategies - Health policy resource center information on access, quality and cost-effectiveness in publicly financed health care.
- Commonwealth Fund - Access independent research on health care issues and health care practice and policy.
- Global Health Policy Research Network - Research on high-priority global health policy issues
- Kaiser Family Foundation Health and Law - Policy research and analysis, and in-depth health policy news coverage.
- National Health Policy Forum - Health policy information for federal health policy staff featuring basic education on specific policies, programs, and issues, to complex analyses of the health care system, including information from important research studies, demonstrations, and innovative community efforts.
- Robert Wood Johnson Foundation - Information and funding for research and programs to build a Culture of Health.
- PH Partners Legislation and Policy - Resources to support legislation and policy at the state and federal levels.

Social Media and Blogs



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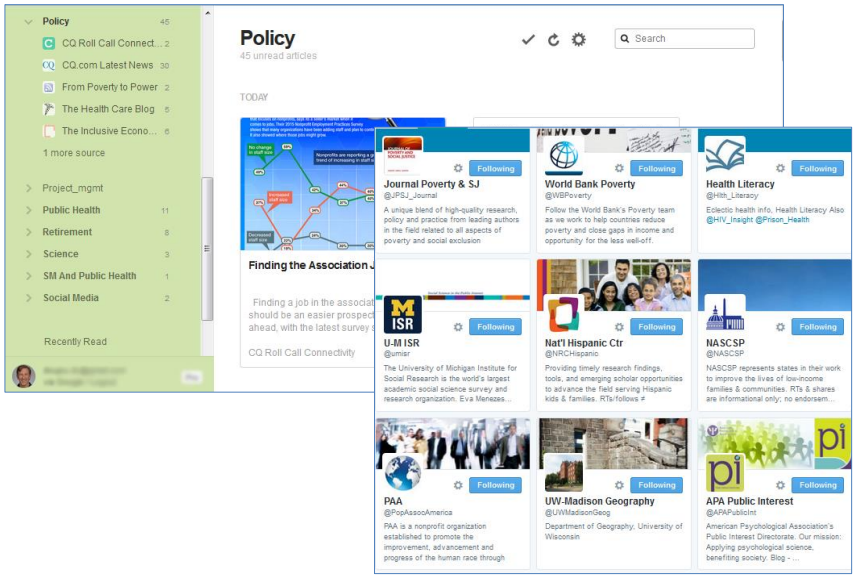
Blogs and Twitter follows



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Office of Management

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